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A handwritten signature in black ink, appearing to be "LM", written over a horizontal line.

LEANNE MYNOTT  
MANAGER EXAMINATION SUPPORT  
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AUSTRALIA  
Patents Act 1990

PROVISIONAL SPECIFICATION

Applicant(s):

INLINK TECHNOLOGIES PTY LTD

Invention Title:

A SYSTEM AND METHOD FOR FORMING INFORMATION  
PERTAINING TO AN ELEVATOR

The invention is described in the following statement:

A SYSTEM AND METHOD FOR FORMING INFORMATION PERTAINING TO  
AN ELEVATOR

5 FIELD OF THE INVENTION

The present invention relates generally to a system and method for forming information pertaining to an elevator. The system and method of the present invention have particular, but by no means exclusive, application to forming information comprising audiovisual and elevator status information.

BACKGROUND OF THE INVENTION

15

Collecting information pertaining to an elevator is desirable for several reasons. For example, collecting audiovisual information concerning occupants of the elevator is particularly useful for security and safety systems. More specifically, being able to collect video footage of the occupants inside the elevator enables security officers to identify occupants who may, for instance, vandalise the passenger area of the elevator. The ability to collect audio information from the occupants of the elevator enables, for example, an emergency call centre operator to communicate with the occupants in the event of the elevator unexpectedly breaking down and trapping occupants therein. Other information relating to the elevator that may be desirable to collect includes information pertaining to the status of the elevator. For example, status information would typically allow a maintenance engineer to readily determine the status of the elevator, such as the floor at which the elevator is located.

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SUMMARY OF THE INVENTION

According to a first aspect of the present invention, there is provided a system for forming  
5 information pertaining to an elevator, the system comprising:

obtaining means arranged to obtain first information which is related to a person in the elevator, and second information about a status of the elevator; and  
10 associating means arranged to create an association between the first information related and the second information, to thereby form the information pertaining to the elevator.

15 Thus, the association enables an entity to readily determine the second information that is associated with the first information, or visa versa.

Preferably, the obtaining means is arranged to  
20 obtain the first information and the second information from an information capture system that is remote to obtaining means.

Alternatively, the information capture system  
25 could in fact be part of the obtaining means.

Preferably, the obtaining means comprises a communications interface arranged such that the obtaining means can obtain the first information and the second  
30 information from the information capture system.

Preferably, the communication interface is arranged to communicate with the information capture system using Ethernet.

35 Alternatively, the communication interface is arranged to communicate with the information capture system

using other communication technologies, for example fibre optic communication.

5                    Preferably, the associating means is arranged to create the association by assigning first data to the first information and second data to the second information, wherein the first data and the second data correspond substantially with each other.

10                   Alternatively, the associating means is arranged to create the association by inserting the information about the status of the elevator in to the information related to the person.

15                   Preferably, the first data and the second data each comprise a time and/or date stamp.

20                   Alternatively, the first data and the second data each comprise a tag or identifier that is made up of a series of selected numerals and/or letters.

25                   Preferably, the system further comprises a storage means arranged to store the first information, second information and the association.

                    Preferably, the storage means comprises a database.

30                   Alternatively, the storage means comprises a storage medium such as a CD-ROM or hard disk.

35                   Preferably, the system further comprises access means arranged such that an entity can access the first information, second information and the association when stored in the storage means.

                    Preferably, the access means is arranged such

that the entity can access the first information, second information and the association from a device remote from the storage means.

5           Alternatively, the access means is arranged to enable the device to have local access to the storage means.

          Preferably, the access means is arranged to  
10 communicate with the device via an Internet.

          Preferably, the first information comprises video and/or audio information, and the second information comprises a direction, floor position, door status and mode  
15 of the elevator, and fault related data.

          Preferably, the second information also comprises elevator security information.

20           According to a second aspect of the present invention, there is provided a method of forming information pertaining to an elevator, the method comprising the steps of:

          obtaining first information which is related to a  
25 person in the elevator, and second information about a status of the elevator; and

          creating an association between the first information related and the second information, to thereby form the information pertaining to the elevator.

30           Preferably, the obtaining step comprises the step of obtaining the first information and the second information from an information capture system that is remote to obtaining means.

35           Preferably, the obtaining step comprises the step of using a communications interface to obtain the first

information and the second information from the information capture system.

Preferably, the communication interface is  
5 arranged to communicate with the information capture system using Ethernet.

Preferably, the creating step comprises the step of creating the association by assigning first data to the  
10 first information and second data to the second information, wherein the first data and the second data correspond substantially with each other.

Preferably, the first data and the second data  
15 each comprise a time and/or date stamp.

Preferably, the method further comprises the step of storing the first information, second information and the association in a storage means.  
20

Preferably, the storage means comprises a database.

Preferably, the method further comprises the step  
25 of accessing the first information, second information and the association when stored in the storage means.

Preferably, the accessing step comprises the step of accessing the first information, second information and  
30 the association from a device remote from the storage means.

Preferably, the first information comprises video and/or audio information, and the second information  
35 comprises a direction, floor position, door status and mode of the elevator, and fault related data.

Preferably, the second information also comprises elevator security information.

5 According to a third aspect of the present system, there is provided software comprising instructions that enable a system to perform the method according to the first aspect of the present invention.

10 According to a fourth aspect of the present invention, there is provided a computer readable medium comprising the software according to the third aspect of the present invention.

#### BRIEF DESCRIPTION OF THE FIGURES

15 Notwithstanding any other embodiments that may fall within the scope of the present invention, an embodiment of the present invention will now be described, by way of example only, with reference to the accompanying figure 1, which provides a schematic diagram of a system according to an embodiment of the present invention.

#### AN EMBODIMENT OF THE PRESENT INVENTION

25 As can be seen in figure 1, which provides a schematic diagram of a system 1 according to an embodiment of the present invention, the system 1 comprises: a building server 3; an elevator interface system 5; an elevator client 7; a communication switch 9; and  
30 communication links 11.

The elevator client 7 is located on the elevator 13 and is essentially concerned with creating first information related to a person in the elevators 13. The  
35 first information comprises video and/or audio information. In order to create the first information, the elevator client 7 comprises a personal computer, a video camera that



is connected to the personal computer, and a microphone that is also connected to the personal computer (all of which are not illustrated in figure 1). The video camera and the microphone are typical of those used in security systems and are arranged to capture video and audio from the passenger area of the elevator 13. The video and audio signals from the video camera and microphone are forwarded to the personal computer. The personal computer comprises a video/audio capture card that processes the video and audio signals from the video camera and microphone to produce a digital version of the video and audio signals. The personal computer is further arranged to place the digital versions of the video and audio signals in to a format that can be transmitted over the communication link 11a in a reliable manner. The communication link 11a is a copper wire located in the travelling cable attached between the elevator 13 and the elevator motor room (not shown in figure 1). The format in to which the personal computer places the digital version of the video signal over the communication link 11a accords with a digital subscriber line format.

As can be seen in figure 1, the communication link 11a is connected between the elevator client 7 the communication switches 9. Consequently, the digital versions of the video and audio signals from the video camera and microphone are received by the communication switch 9. Given that the digital versions of the video and audio signals are transmitted over the communication link 11a according to a digital subscriber line format, the communication switch 9 is arranged to process information on the communication link 11a that may be in a digital subscriber line format.

In addition to the elevator client 7, the system 1 also comprises an elevator interface system 5. Effectively, the elevator interface system is in the form

of a PC-based programmable logic controller that is used for data acquisition and which is connected to the elevator control system in the elevator motor room (all of which are not shown in figure 1). The programmable logic controller  
5 is arranged to create the second information regarding the status of the elevator 13. The second information comprises elevator status information such as direction, floor position, door status or mode of the elevator. The second information also contains security related information,  
10 such as swipe card access usage.

The elevator interface system 5 comprises a communication interface that is capable of arranging the second information in to a format that accords with the  
15 Ethernet format. The communication interface is such that it places the second information on to the communication link 11b, which is in the form of an Ethernet cable that is located between the elevator interface system 5 and the communication switch 9.

20

Both the elevator client 7 and the elevator interface system 5 place the first information and second information on to the communication links 11a and 11b, respectively, in a streaming fashion; that is, the elevator  
25 client 7 and elevator interface system 5 output the information on a continuous basis.

The communication link 11b is connected from the elevator interface system 5 to the communication switch 9a.  
30 Consequently, when the elevator interface system 5 places the second information on the communication link 11b it is received by the communication switch 9.

The communication switch 9 is arranged such that  
35 upon receiving information from the communication links 11a and 11b (that is, the first information and the second information), it re-directs that information on to

communication link 11c. The communication link 11c is in the form of an Ethernet cable. The communication switch 9 places information on to the communication link 11c in the Ethernet format. The communication link 11c is connected to  
5 the building server 3; consequently, any information placed on the communication link 11c by the switch 9 will be received by the building server 3. This means that the first information created by the elevator client 7 and the second information created by the elevator interface system  
10 5 will ultimately be received by the building server 3 via the communication link 11c.

The building server 3 comprises an obtaining means which is arranged to enable the building server 3 to  
15 obtain the first information (video and audio information) and the second information (elevator status information). Essentially, the obtaining means is in the form of hardware and/or software that is capable of interacting with the communication link 11c in order to retrieve the first  
20 information and the second information, which was initially placed on the link 11c by the communication switch 9. The obtaining means is further arranged such that it supports the Ethernet format so that it can decode the information placed on to the link 11c by the switch 9.

25

The building server 3 also comprises an associating means that is arranged to create an association between the first information and the second information retrieved from the communication link 11c by the obtaining  
30 means. The associating means is also in the form of hardware and/or software. In order to create the association between the first information and the second information, the associating means essentially marks the first information and the second information with a time  
35 and/or date stamp. The first information and the second information are marked with the time and/or date stamp shortly after the information is obtained by the obtaining

means. The building server 3 comprises an internal clock (which is periodically synchronised with a standard time service via the Internet), which the associating means uses to get the time and/or date stamp that is used to mark the first information and the second information.

Marking the first information and the second information with a time and/or date stamp provides the advantage of, for example, allowing an entity viewing an image of the elevator 13 (contained in the first information) to readily determine the status of the elevator 13 at an instant when the image was captured. This is achieved by checking for the same or similar time and/or date stamps in the first information and the second information.

In addition to the obtaining means and the associating means, the building server 3 comprises a storage means in the form of a database. The building server 3 uses the storage means to store the first information, second information and the association. The building means 3 typically stores information in the storage means in a format that accords with an extensible mark-up language (XML).

Typically, the entity logging on to the building server 3 is, for example, a security monitoring system used by a building manager to monitor the elevator 13. The monitoring system would typically present the first information and the second information to the building manager via a computer screen.

The building server 3 comprises an access means that enables entities to gain access to the storage means in order to access the first information, second information and the association when stored therein. Essentially, the access means is in the form of

hardware/software that enables the entity to log-on to the building server 3 either via a local area network or the Internet and retrieve the first information, second information and the association from the storage means.

5

Those skilled in the art will appreciate that the invention described herein is susceptible to variations and modifications other than those specifically described. It should be understood that the invention includes all such variations and modifications which fall within the spirit and scope of the invention.

10.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A system for forming information pertaining to an elevator, the system comprising:  
5 obtaining means arranged to obtain first information which is related to a person in the elevator, and second information about a status of the elevator; and associating means arranged to create an association between the first information related and the  
10 second information, to thereby form the information pertaining to the elevator.
2. The system as claimed in claim 1, wherein the obtaining means is arranged to obtain the first  
15 information and the second information from an information capture system that is remote to obtaining means.
3. The system as claimed in claim 1 or 2, wherein the obtaining means comprises a communications  
20 interface arranged such that the obtaining means can obtain the first information and the second information from the information capture system.
4. The system as claimed in claim 3, wherein  
25 the communication interface is arranged to communicate with the information capture system using Ethernet.
5. The system as claimed in any one of the preceding claims, wherein the associating means is arranged  
30 to create the association by assigning first data to the first information and second data to the second information, wherein the first data and the second data correspond substantially with each other.
- 35 6. The system as claimed in claim 5, wherein the first data and the second data each comprise a time and/or date stamp.

7. The system as claimed in any one of the preceding claims, further comprising a storage means arranged to store the first information, second information  
5 and the association.

8. The system as claimed in claim 7, wherein the storage means comprises a database.

10 9. The system as claimed in any one of the preceding claims, further comprising access means arranged such that an entity can access the first information, second information and the association when stored in the storage means.

15 10. The system as claimed in claim 9, wherein the access means is arranged such that the entity can access the first information, second information and the association from a device remote from the storage means.

20 11. The system as claimed in claim 10, wherein the access means is arranged to communicate with the device via an Internet.

25 12. The system as claimed in any one of the preceding claims, wherein the first information comprises video and/or audio information, and the second information comprises a direction, floor position, door status and mode of the elevator, and fault related data.

30 13. The system as claimed in any one of the preceding claims, wherein the second information also comprises elevator security information.

35 14. A method of forming information pertaining to an elevator, the method comprising the steps of:  
obtaining first information which is related to a

person in the elevator, and second information about a status of the elevator; and

creating an association between the first information and the second information, to thereby form the  
5 information pertaining to the elevator.

15. The method as claimed in claim 14, wherein the obtaining step comprises the step of obtaining the first information and the second information from an  
10 information capture system that is remote to obtaining means.

16. The method as claimed in claim 14 or 15, wherein the obtaining step comprises the step of using a  
15 communications interface to obtain the first information and the second information from the information capture system.

17. The method as claimed in claim 16, wherein  
20 the communication interface is arranged to communicate with the information capture system using Ethernet.

18. The method as claimed in any one of claims 14 to 17, wherein the creating step comprises the step of  
25 creating the association by assigning first data to the first information and second data to the second information, wherein the first data and the second data correspond substantially with each other.

19. The method as claimed in claim 18, wherein  
30 the first data and the second data each comprise a time and/or date stamp.

20. The method as claimed in any one of claims  
35 14 to 17, further comprising the step of storing the first information, second information and the association in a storage means.



21. The method as claimed in claim 19, wherein the storage means comprises a database.

5           22. The method as claimed in any one of claims 19 to 20, wherein the method further comprises the step of accessing the first information, second information and the association when stored in the storage means.

10           23. The method as claimed in claim 22, wherein the accessing step comprises the step of accessing the first information, second information and the association from a device remote from the storage means.

15           24. The method as claimed in any one of claims 14 to 23, wherein the first information comprises video and/or audio information, and the second information comprises a direction, floor position, door status and mode of the elevator, and fault related data.

20           25. The method as claimed in any one of claims 14 to 24, wherein the second information also comprises elevator security information.

25           26. Software comprising instructions that enable a system to perform the method as claimed in any one of claims 14 to 25.

30           27. A computer readable medium comprising the software as claimed in claim 26.

            28. The system substantially as herein described with reference to the accompanying figures.

35

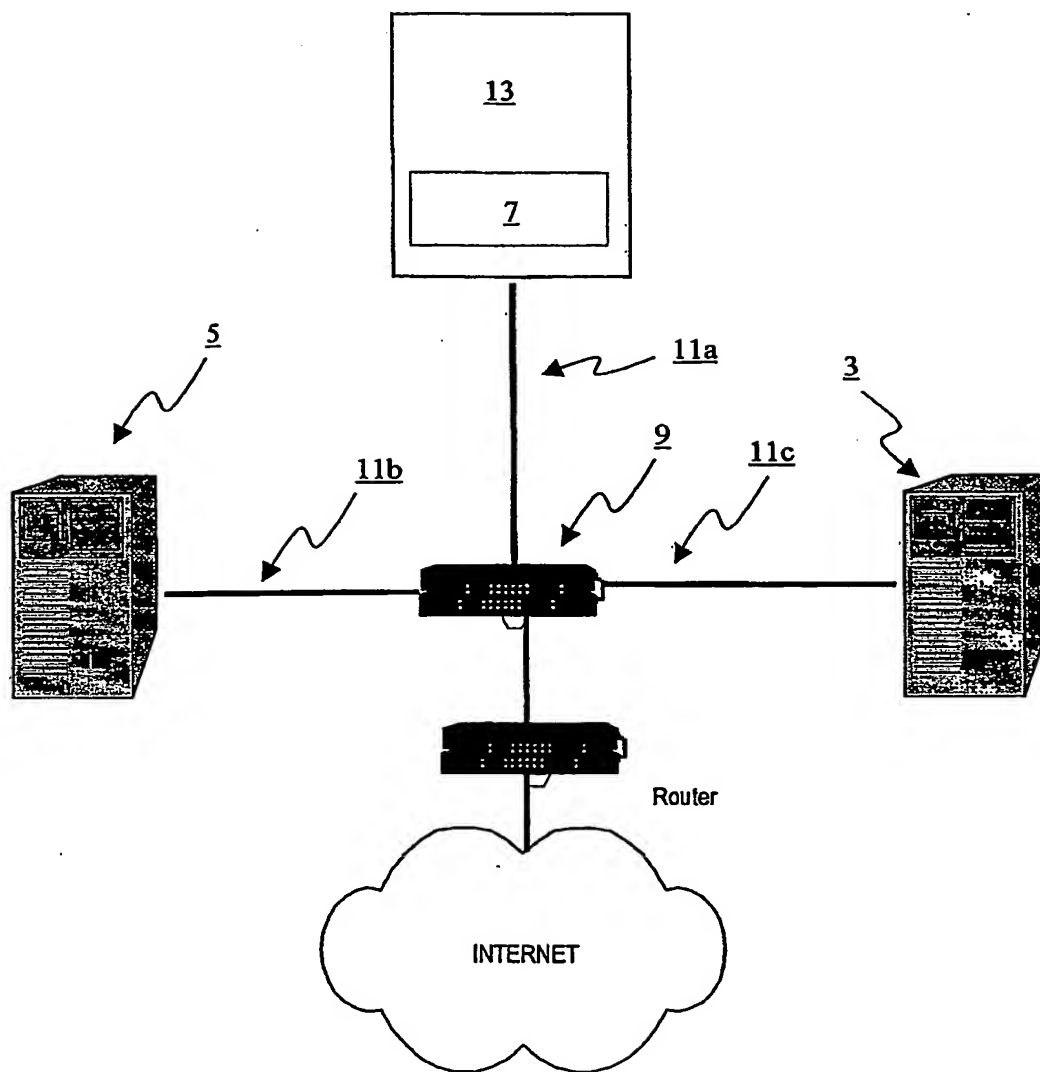
29. The method substantially as herein described with reference to the accompanying figures.

Dated this 17<sup>th</sup> day of November 2003

5 INLINK TECHNOLOGIES PTY LTD

By their Patent Attorneys

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**FIGURE 1**

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